

Remarks/Argument

Claim Summary

By this Amendment, claim 1 has been revised to incorporate the subject matter of dependent claim 3 (now cancelled), and independent claim 4 has been revised to incorporate the subject matter of dependent claim 5 (now cancelled).

Claims 1-2, 4 and 6-11 are now pending in the application.

35 U.S.C. ¶103

In the Office Action dated October 5, 2006, the Examiner rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Abe (U.S. Patent Application Publication No. 2002/0142660) and Dong (U.S. Patent No. 6,725,314); rejected claims 2, 4, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Abe, Dong and Doblar et al. ("Doblar") (U.S. Patent Application Publication No. 2003/0043613); and rejected claims 3, 5-7, and 9-11 over Abe, Dong, Doblar, Ono et al. ("Ono") (U.S. Patent Application Publication 2002/0041020) and Dixon et al. ("Dixon") (U.S. Patent No. 6081862).

Claim 1

Applicants respectfully traverse the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Abe and Dong. No *prima facie* case of obviousness has been established with respect to claim 1 for at least the reason that the combination of Abe and Dong fails to disclose or suggest each and every claim element.

For example, claim 1 includes a combination of elements including, *inter alia* "at least one single in-line memory module (SIMM) including at least one memory device and a signal transmission line . . . at least one dual in-line memory module (DIMM) including at least two memory devices and a signal

transmission line . . . wherein a length of the signal transmission line of the at least one SIMM is longer than a length of the signal transmission line of the at least one DIMM.” The combination of Abe and Dong fails to disclose or suggest at least these claim elements.

In the Office Action, the Examiner maintained that Abe discloses “at least one [SIMM] including at least one memory device and a signal transmission line.” See Office Action at page 3 (citing to Abe paragraph 0007-0008 and 0020.) Furthermore, the Examiner also maintained that Abe also discloses “at least one [DIMM] including at least two memory devices and a signal transmission line connected between the two memory devices and a connection terminal.” See Office Action at page 3 (citing to Abe 0007-0008 and 0020.)

However, a thorough review of Abe reveals that Abe does not disclose the aforementioned claim elements as maintained by the Examiner. For example, Abe does not disclose the use of both, a DIMM and a SIMM in combination as required by claim 1. While apparently Abe discloses that electronic modules such as DIMMs may be used to insert into the disclosed connectors, (see Abe, paragraph 0020), no portion of Abe discloses the use of both a DIMM and a SIMM in combination as required by claim 1.

Assuming, *arguendo*, that Abe discloses the use of both, a SIMM and DIMM, no portion of Abe discloses the use of “at least one [SIMM] including at least one memory device and a signal transmission line . . . at least one DIMM including at least two memory devices and a signal transmission line,” as required by claim 1. (Emphasis added.) Apparently, as discussed by the Examiner, Abe discloses a **connector** including a number of elements. See Abe, paragraphs 007 and 0008. However, a **connector** does not constitute “at least one [SIMM] including at least one memory device and a signal transmission line . . . at least one DIMM including at least two memory devices and a signal transmission line,” as required by claim 1. Indeed, the entire

disclosure of Abe is directed towards a connector and not towards a SIMM and a DIMM including the claim elements recited in claim 1. E.g., see Abe at paragraphs 0024 and 0025.

Furthermore, the Examiner maintained that though “[Abe] does not expressly disclose a longer length of the at least one SIMM signal transmission line than that of the at least one DIMM,” Dong does disclose this claim feature. See Office Action, at page 3, (citing to Dong col. 1, lines 43-46, col. 2, lines 15-16, and col. 1, lines 27-29.) Applicants respectfully submit that Dong does not suggest or disclose “wherein a length of the signal transmission line of the at least one SIMM is longer than a length of the signal transmission line of the at least one DIMM.”

Dong discloses that “[i]n many systems, the memory module connectors are mounted on a motherboard or system board such that the memory modules connect to a memory bus one row after another or in a daisy chain.” See Dong, col. 1 lines 43-47. Dong also discloses that “the length of a data path from the memory controller to one memory bank may be significantly different than the length of the same data path to a different memory bank. See Dong, col.1 lines 25-30. However, neither do these portions of Dong and, indeed, nor do other portions of Dong disclose or suggest that “a length of the signal transmission line of the at least one SIMM is longer than a length of the signal transmission line of the at least one DIMM,” as required by claim 1. (Emphasis added.) Specifically, a difference in the distance between one memory module and a controller and another memory module and the controller does not necessarily constitute that “a length of the signal transmission line of the at least one SIMM is longer than a length of the signal transmission line of the at least one DIMM,” as required by claim 1.

Applicants respectfully submit that the Examiner is impermissibly reading elements of claim 1 into the disclosure of Abe and Dong despite their being no suggestion or teaching in Abe and Dong of the elements included in

claim 1. Thus, for at least the reason that the combination of Abe and Dong fails to disclose or suggest each and every element of claim 1, the Section 103(a) rejection of claim 1 should be withdrawn.

The above-mentioned remarks notwithstanding, in an effort to expedite prosecution and further define claim 1 over Abe and Dong, Applicants have incorporated the subject matter of dependent claim 3 into claim 1. Thus, claim 1 now further includes “wherein a length of the signal transmission line of the at least one SIMM is longer than a length of the signal transmission line of the at least one DIMM, which increases the signal delay time of the at least one SIMM to further compensate for the signal delay time difference caused by the signal transmission line connected between the first and second sockets.” The combination of Abe and Dong fails to disclose or suggest at least these additional claim elements. Indeed, the Office Action admits that the combination of Abe, Dong, and Doblar does not teach the above-mentioned claim elements. See Office Action page 6, paragraph 7.

However, in rejecting claim 3, the Examiner maintained that Ono discloses the above-mentioned claim elements. See id. However, a thorough review of Ono reveals that Ono does not disclose these claim elements. Specifically, Ono discloses that “a shorter bus wiring with a shorter distance between the sockets in addition will achieve a better characteristic.” See Ono, paragraph 0009. This is, in fact, **contrary** to the recitations in claim 1 which include “wherein a length of the signal transmission line of the at least one SIMM is longer than a length of the signal transmission line of the at least one DIMM, which increases the signal delay time of the at least one SIMM to further compensate for the signal delay time difference caused by the signal transmission line connected between the first and second sockets.” Thus, for at least the reason that the combination of Abe, Dong, Doblar, and Ono fails to disclose each and every claim element, the Section 103(a) rejection of claim 1 should be withdrawn.

Claims 2, 4, and 8

Applicants respectfully traverse the rejection of claims 2, 4, and 8 as being unpatentable under 35 U.S.C. § 103(a) over Abe, Dong and Doblar. No *prima facie* case of obviousness has been established against claims 2, 4, and 8 for at least the reason that the combination of Abe, Dong, and Doblar fails to disclose or suggest every claim element. For example, claim 2 depends from and adds additional features to independent claim 1. Moreover, Doblar, relied on for its disclosure that “the load of the at least one memory device of the at least one SIMM is less than the load of the at least one DIMM,” (see Office Action at page 4, paragraph 6) fails to remedy the deficiency of Abe and Dong, as discussed above in the traversal of the rejection of claim 1.

In fact, Doblar does not even disclose the additional claim features recited in claim 2. For example, Doblar does not disclose that the “longer length of the signal transmission line of the at least one SIMM increases a signal delay time of the at least one SIMM to compensate for the different loads of the at least one memory device of the at least one SIMM and the memory devices of the at least one DIMM,” as required by claim 2. Apparently, the Examiner did not expressly address this claim feature of claim 2 in the rejection of claim 2.

Assuming, *arguendo*, that the Examiner inadvertently forgot to address this claim feature, Applicants respectfully submit that this claim feature is not disclosed or suggested by Doblar. In fact, Doblar discloses that in a memory module including eighteen memory chips, “[b]y splitting the chips into two banks [and] driving each bank with separate outputs of the buffer and bank control circuit, the loading characteristics and access time are essentially the same as for a module having only nine chips.” See Doblar, paragraph 0024. Thus, Doblar does not disclose that the “longer length of the signal transmission line of the at least one SIMM increases a signal delay time of the at least one SIMM to compensate for the different loads of the at least one

memory device of the at least one SIMM and the memory devices of the at least one DIMM,” as required by claim 2.

Independent claim 4, although different in scope, includes elements similar to those of claim 1. Furthermore, Doblar fails to remedy the deficiency of Abe and Dong, as discussed above in the traversal of the rejection of claim 1. The above-mentioned remarks notwithstanding, in an effort to expedite the prosecution of this application and further define claim 4 over Abe, Dong, and Doblar, Applicants have amended claim 4 to include elements from claim 5. Thus, claim 4 now further includes “wherein a length of the first signal transmission line of the first memory module is longer than a length of the second signal transmission line of the second memory module, which increases a signal delay time of the first memory module to compensate for the different loads of the first and second modules.” The combination of Abe, Dong, and Doblar fails to disclose or suggest at least these claim elements. Indeed, the Office Action admits that the combination of Abe, Dong, and Doblar does not teach the above-mentioned claim elements. See Office Action page 7.

However, in rejecting claim 5, the Examiner claimed that the combination of Ono and Dixon discloses the above-mentioned claim elements. See id. However, as discussed above, Ono fails to disclose these claim elements. Furthermore Dixon, relied on for its disclosure of adjusting the length of transmission lines, (see Office Action page 7, (citing Dixon column 1 lines 66-67 and column 2 lines 1-4)) fails to remedy the deficiency of Ono.

Dependent claim 8 depends from and adds additional features of novelty to claim 4. As discussed above, the combination of Abe, Dong, and Doblar fails to disclose or suggest every element of claim 4. For at least these reasons, the Section 103(a) rejection of claims 2, 4, and 8 should be withdrawn.

Claims 3, 5-7, and 9-11

Applicants respectfully traverse the rejections of claims 3, 5-7, and 9-11 under 35 U.S.C. § 103(a) as being unpatentable over Abe, Dong, Doblar, Ono and Dixon. Claims 3 and 5 have been cancelled in this Reply. Furthermore, no *prima facie* case of obviousness has been established with respect to claims 6, 7, and 9-11 for at least the reason that the combination of Abe, Dong, Doblar, Ono, and Dixon fails to disclose each and every claim element. For example, claim 6 ultimately depends from claim 4 and includes additional features of novelty. Moreover, Ono and Dixon fail to remedy the deficiency of Abe, Dong, and Doblar, as discussed above in the traversal of the rejection of claim 4. Therefore, for at least these reasons, the Section 103(a) rejection of claims 3, 5-7, and 9-11 should be withdrawn.

Conclusion

No other issues remaining, reconsideration and favorable action upon claims 1-2, 4 and 6-11 in the application are requested.

Respectfully submitted,

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